

Claims

1. A piston pump (18), in particular for a hydraulic unit of an electronically controllable vehicle brake system, having a pump housing (10) with at least one installation space (12), having a bushing (24) that is inserted into the installation space (12) and axially guides a pump piston (16) that can be driven into a stroke motion, having at least one pressure chamber (50) whose volume can be changed by the stroke motion of the pump piston (16), and having a pressure fluid inlet (20) and pressure fluid outlet (82) connected to the pressure chamber, characterized in that the pressure fluid outlet (82) is routed at least partway along the circumference surface of the bushing (24) and that in the region of this section extending along the circumference surface, a filter and throttle are provided, which of one piece with the bushing (24).
2. The piston pump according to claim 1, characterized in that the filter and the throttle are embodied in radial ribs (84a, 84b), which extend in the circumference direction and are spaced axially apart from each other, wherein the circumferential edges of these radial ribs (84a, 84b) produce a pressure fluid-tight connection with the wall of the installation space (12) of the piston pump (18).
3. The piston pump according to claim 1 or 2, characterized in that the pump housing (10) has at least two radial ribs (84a, 84b), wherein the filter is associated with the upstream first radial rib (84a) and the throttle is associated with the downstream second radial rib (84b).

4. The piston pump according to one of claims 1 to 3, characterized in that the filter is embodied as an edge filter and the throttle is embodied as an edge throttle in that the corresponding radial ribs (84a, 84b) have groove-shaped recesses (88a, 88b) distributed over their circumferences, passing axially through the radial ribs (84a, 84b), wherein the individual recesses (88a) of the filter have a smaller flow cross section for the pressure medium than the cross section of the throttle, but the sum of flow cross sections of the recesses (88a) of the filter is a multiple of the flow cross section of the throttle.
5. The piston pump according to one of claims 1 to 4, characterized in that the throttle has a number of recesses (88b) disposed distributed over the circumference of the associated radial rib (84b).
6. The piston pump according to one of claims 1 to 5, characterized in that the recesses (88a, 88b) of the respective radial ribs (84a, 84b) constituting the filter and the throttle are radially offset from one another in the flow direction.
7. The piston pump according to one of claims 1 to 6, characterized in that the radial ribs (84a, 84b) produce a press-fit connection with the wall of the installation space (12) and that in addition to the radial ribs (84a, 84b) constituting the filter and the throttle, the bushing (24) is provided with at least one third radial rib (84c), which seals off the pressure fluid inlet (20) from the pressure fluid outlet (82).
8. The piston pump according to claim 7, characterized in that the radial ribs (84a, 84b) of the filter and throttle have the same outer diameter.

9. The piston pump according to one of claims 1 to 8, characterized in that a damping element (90) is hydraulically connected in parallel to the filter and its disposition is chosen so that its longitudinal axis extends transversely to the longitudinal axis of the piston pump (18).

10. The piston pump according to one of claims 1 to 9, characterized in that the damping element (90) includes a hollow body (92) that is open at one end and into whose inner chamber an elastomer piece (94) is inserted, which has at least one continuous recess (98) extending in the longitudinal direction.